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NEWS 8	DEC 23	New IPC8 SEARCH, DISPLAY, and SELECT fields in USPATFULL/ USPAT2
NEWS 9	JAN 13	IPC 8 searching in IFIPAT, IFIUDB, and IFICDB
NEWS 10	JAN 13	New IPC 8 SEARCH, DISPLAY, and SELECT enhancements added to INPADOC
NEWS 11	JAN 17	Pre-1988 INPI data added to MARPAT
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NEWS EXPRESS JANUARY 03 CURRENT VERSION FOR WINDOWS IS V8.01,
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http://download.cas.org/express/v8.0-Discover/

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FILE 'HOME' ENTERED AT 17:34:10 ON 19 JAN 2006

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FILE LAST UPDATED: 18 Jan 2006 (20060118/ED)

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=> s hexamethylenediamine or aminocapronitrile
          9452 HEXAMETHYLENEDIAMINE
            63 HEXAMETHYLENEDIAMINES
          9486 HEXAMETHYLENEDIAMINE
                 (HEXAMETHYLENEDIAMINE OR HEXAMETHYLENEDIAMINES)
           298 AMINOCAPRONITRILE
             3 AMINOCAPRONITRILES
           298 AMINOCAPRONITRILE
                 (AMINOCAPRONITRILE OR AMINOCAPRONITRILES)
L1        9678 HEXAMETHYLENEDIAMINE OR AMINOCAPRONITRILE

=> s l1 and (process or prepar? or make or made or synthesi?)
       2191689 PROCESS
       1474198 PROCESSES
       3266134 PROCESS
                 (PROCESS OR PROCESSES)
       1609165 PREPAR?
        120098 PREP
          2137 PREPS
        122030 PREP
                 (PREP OR PREPS)
       1979199 PREPD
            21 PREPDS
       1979214 PREPD
                 (PREPD OR PREPDS)
        115677 PREPG
            12 PREPGS
        115688 PREPG
                 (PREPG OR PREPGS)
       2667572 PREPN
        202660 PREPNS
       2820629 PREPN
```

```
                (PREPN OR PREPNS)
       4663249 PREPAR?
                (PREPAR? OR PREP OR PREPD OR PREPG OR PREPN)
        222095 MAKE
        173552 MAKES
        383896 MAKE
                (MAKE OR MAKES)
       1183939 MADE
            24 MADES
       1183960 MADE
                (MADE OR MADES)
       1470529 SYNTHESI?
L2        6682 L1 AND (PROCESS OR PREPAR? OR MAKE OR MADE OR SYNTHESI?)

=> s l2 and adiponitrile
          2055 ADIPONITRILE
            63 ADIPONITRILES
          2067 ADIPONITRILE
                (ADIPONITRILE OR ADIPONITRILES)
L3         289 L2 AND ADIPONITRILE

=> s l3 and tetrahydroazepine
            71 TETRAHYDROAZEPINE
            16 TETRAHYDROAZEPINES
            83 TETRAHYDROAZEPINE
                (TETRAHYDROAZEPINE OR TETRAHYDROAZEPINES)
L4           6 L3 AND TETRAHYDROAZEPINE

=> s l3 and hexamethyleneimine
           401 HEXAMETHYLENEIMINE
            11 HEXAMETHYLENEIMINES
           409 HEXAMETHYLENEIMINE
                (HEXAMETHYLENEIMINE OR HEXAMETHYLENEIMINES)
L5           4 L3 AND HEXAMETHYLENEIMINE

=> s l3 and raney nickel or raney cobalt
         28002 RANEY
             1 RANEYS
         28002 RANEY
                (RANEY OR RANEYS)
        594636 NICKEL
           197 NICKELS
        594663 NICKEL
                (NICKEL OR NICKELS)
          4901 RANEY NICKEL
                (RANEY(W)NICKEL)
         28002 RANEY
             1 RANEYS
         28002 RANEY
                (RANEY OR RANEYS)
        362285 COBALT
            95 COBALTS
        362288 COBALT
                (COBALT OR COBALTS)
           203 RANEY COBALT
                (RANEY(W)COBALT)
L6         233 L3 AND RANEY NICKEL OR RANEY COBALT

=> s l3 and (raney nickel or raney cobalt)
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```
         28002 RANEY
             1 RANEYS
         28002 RANEY
                 (RANEY OR RANEYS)
        594636 NICKEL
           197 NICKELS
        594663 NICKEL
                 (NICKEL OR NICKELS)
          4901 RANEY NICKEL
                 (RANEY(W)NICKEL)
         28002 RANEY
             1 RANEYS
         28002 RANEY
                 (RANEY OR RANEYS)
        362285 COBALT
            95 COBALTS
        362288 COBALT
                 (COBALT OR COBALTS)
           203 RANEY COBALT
                 (RANEY(W)COBALT)
L7           35 L3 AND (RANEY NICKEL OR RANEY COBALT)

=> d his

     (FILE 'HOME' ENTERED AT 17:34:10 ON 19 JAN 2006)

     FILE 'CAPLUS' ENTERED AT 17:34:22 ON 19 JAN 2006
L1          9678 S HEXAMETHYLENEDIAMINE OR AMINOCAPRONITRILE
L2          6682 S L1 AND (PROCESS OR PREPAR? OR MAKE OR MADE OR SYNTHESI?)
L3           289 S L2 AND ADIPONITRILE
L4             6 S L3 AND TETRAHYDROAZEPINE
L5             4 S L3 AND HEXAMETHYLENEIMINE
L6           233 S L3 AND RANEY NICKEL OR RANEY COBALT
L7            35 S L3 AND (RANEY NICKEL OR RANEY COBALT)

=> dup rem l4 l5 l7
PROCESSING COMPLETED FOR L4
PROCESSING COMPLETED FOR L5
PROCESSING COMPLETED FOR L7
L8            44 DUP REM L4 L5 L7 (1 DUPLICATE REMOVED)

=> d l8 ibib hitstr abs 1-44

L8   ANSWER 1 OF 44  CAPLUS  COPYRIGHT 2006 ACS on STN DUPLICATE 1
ACCESSION NUMBER:         2005:238743  CAPLUS
DOCUMENT NUMBER:          142:298456
TITLE:                    Process for producing
                          hexamethylenediamine and
                          aminocapronitrile from adiponitrile,
                          wherein the hexamethylenediamine contains
                          less than 100 ppm tetrahydroazepine
INVENTOR(S):              Allgeier, Alan Martin; Ostermaier, John J.
PATENT ASSIGNEE(S):       USA
SOURCE:                   U.S. Pat. Appl. Publ., 4 pp.
                          CODEN: USXXCO
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:
```

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005059822	A1	20050317	US 2003-663479	20030915
WO 2005028418	A1	20050331	WO 2004-US30257	20040915

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2003-663479 A 20030915

AB **Process** for making both ACN and HMD from partial hydrogenation of ADN by using a combination of distns. resulting in the formation of a mixture of HMD and THA that can be hydrogenated to produce a mixture of HMD and HMI that can be separated easily by simple distillation

L8 ANSWER 2 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:1127152 CAPLUS
DOCUMENT NUMBER: 142:74968
TITLE: Hydrolytic and distillation method for making ε-caprolactam from impure 6-**aminocapronitrile** in which **tetrahydroazepine** is not removed until after the ε-caprolactam is produced
INVENTOR(S): Kirby, Gregory S.; Ostermaier, John J.
PATENT ASSIGNEE(S): Invista North America S.A.R.L., USA
SOURCE: U.S. Pat. Appl. Publ., 6 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004260087	A1	20041223	US 2003-464104	20030617
US 6858728	B2	20050222		
WO 2005000808	A1	20050106	WO 2004-US19442	20040617

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2003-464104 A 20030617

AB A method for making caprolactam from an impure 6-**aminocapronitrile** (ACN), obtained by the partial hydrogenation of **adiponitrile**, which comprises 6-**aminocapronitrile** and both ACN and ≥500

ppm **tetrahydroazepine** and its derivs. (THA), comprises: (1) contacting the impure ACN comprising both ACN and THA with water at elevated temperature in the presence of a dehydration catalyst (e.g., alumina), both the impure ACN and the water being in the vapor phase, to produce a vapor-phase reaction product that comprises ε-caprolactam, ammonia, water, ACN, and THA; (2) separating the ammonia and a major portion of the water from the vapor-phase reaction product to produce a solution comprising ε-caprolactam and a minor portion of the water, and then separating the water from the solution to produce a melt comprising ε-caprolactam, ACN and THA; (3) introducing the melt into a low-boiler-removal distillation column and removing a major portion of both the THA and ACN as a distillate, and removing ε-caprolactam, high boilers and at most a minor portion of both the THA and ACN as a bottoms; and (4) introducing the bottoms into a high-boiler-removal distillation column and removing ε-caprolactam and at most a minor portion of the high boilers as a distillate product and removing a major portion of the high boilers as a bottoms. **Process** flow diagrams are presented.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 3 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:779941 CAPLUS
DOCUMENT NUMBER: 141:279773
TITLE: Distillation method for separating **hexamethylenediamine** from a mixture comprising **hexamethylenediamine**, 6-**aminocapronitrile** and **tetrahydroazepine**
INVENTOR(S): Ostermaier, John J.
PATENT ASSIGNEE(S): Invista North America S.A.R.L., USA
SOURCE: U.S. Pat. Appl. Publ., 5 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004182690	A1	20040923	US 2003-383947	20030307
US 6887352	B2	20050503		
WO 2004080932	A2	20040923	WO 2004-US6463	20040303
WO 2004080932	A3	20050324		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1603651	A2	20051214	EP 2004-716881	20040303
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK				

PRIORITY APPLN. INFO.: US 2003-383947 A 20030307
WO 2004-US6463 W 20040303

AB A method for recovering hexamethylene diamine (HMD) from a mixture comprising HMD, 6-**aminocapronitrile** (ACN) **tetrahydroazepine** (THA), and ADN comprises: (a) introducing the mixture into a distillation column capable of separating as a group the HMD, ACN and at least a portion of the THA from the ADN, while minimizing the isomerization of the ADN into CPI; and (b) introducing the HMD, ACN and at least a portion of the THA into a distillation column capable of separating the HMD from the ACN in such a way that the THA separates along with the ACN.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 4 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:585478 CAPLUS
DOCUMENT NUMBER: 139:137926
TITLE: Recovery of **adiponitrile** from a waste mixture of **adiponitrile**, **aminocapronitrile** and **hexamethylenediamine**
INVENTOR(S): Ostermaier, John; Scott, Leon; Hastings, James
PATENT ASSIGNEE(S): E. I. Du Pont de Nemours & Co., USA
SOURCE: U.S., 6 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6599398	B1	20030729	US 2002-197882	20020717
WO 2004007434	A1	20040122	WO 2003-US22127	20030715
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
BR 2003012897	A	20050614	BR 2003-12897	20030715
EP 1539680	A1	20050615	EP 2003-764699	20030715
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2005533117	T2	20051104	JP 2004-521867	20030715
PRIORITY APPLN. INFO.:			US 2002-197882 A	20020717
			WO 2003-US22127 W	20030715

AB **Process** for the recovery of a purified **adiponitrile** (ADN) from a mixture of **adiponitrile**, **aminocapronitrile** and **hexamethylenediamine**, utilizing two sequential distns.: (1) a first distillation in which the mixture is distilled in a distillation column at a head pressure that causes at least 7% of the ADN to go into the distillate, along with bishexamethylenetriamine (BHMT) and 2-cyanocyclopentylideneimine (CPI), and (2) a second distillation in which the distillate from the first distillation is distilled in a second distillation column at a

head pressure sufficient to cause min.-temperature azeotropy between ADN and BHMT, thereby allowing the majority of the BHMT and CPI to be removed from the second distillation as distillate, and ADN, substantially free of both BHMT and CPI, to be removed as bottoms.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 5 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:5923 CAPLUS
DOCUMENT NUMBER: 138:75102
TITLE: Method and catalysts for the hemihydrogenation of dinitriles into aminonitriles
INVENTOR(S): Leconte, Philippe; Lopez, Joseph
PATENT ASSIGNEE(S): Rhodia Polyamide Intermediates, Fr.
SOURCE: PCT Int. Appl., 11 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003000651	A2	20030103	WO 2002-FR2023	20020613
WO 2003000651	A3	20030220		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
FR 2826364	A1	20021227	FR 2001-8245	20010622
FR 2826364	B1	20050114		
CA 2449121	AA	20030103	CA 2002-2449121	20020613
EP 1397346	A2	20040317	EP 2002-780841	20020613
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CN 1518538	A	20040804	CN 2002-812500	20020613
BR 2002011014	A	20040810	BR 2002-11014	20020613
JP 2004530719	T2	20041007	JP 2003-507058	20020613
RU 2260587	C1	20050920	RU 2004-101604	20020613
US 2004204603	A1	20041014	US 2004-481028	20040527
PRIORITY APPLN. INFO.:			FR 2001-8245 A	20010622
			WO 2002-FR2023 W	20020613

OTHER SOURCE(S): MARPAT 138:75102

AB The hemihydrogenation of dinitriles (e.g., **adiponitrile**) into the corresponding aminonitriles (e.g., **aminocapronitrile**) is described using water and a hydrogenation catalyst system (e.g., **Raney nickel**, KOH, and Et4NF) containing selecting agents.

L8 ANSWER 6 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:730590 CAPLUS
DOCUMENT NUMBER: 137:249499
TITLE: Hydrogenation **process** and catalyst systems for the manufacture of aminonitriles from dinitriles

INVENTOR(S): Ionkin, Alex Sergey
PATENT ASSIGNEE(S): E. I. Du Pont de Nemours & Co., USA
SOURCE: U.S., 7 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6455723	B1	20020924	US 2001-682656	20011002
WO 2003029192	A1	20030410	WO 2002-US33255	20021002
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1434758	A1	20040707	EP 2002-778607	20021002
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
CN 1556789	A	20041222	CN 2002-818334	20021002
PRIORITY APPLN. INFO.:			US 2001-682656 A	20011002
			WO 2002-US33255 W	20021002

OTHER SOURCE(S): MARPAT 137:249499
AB A **process** for the high-yield partial hydrogenation of a dinitrile (e.g., **adiponitrile**) into an aminonitrile (e.g., 6-**aminocapronitrile**) is described comprising: contacting the dinitrile with a hydrogen-containing fluid in the presence of (A) a solvent comprising liquid ammonia, an alc. or both; (B) a hydrogenation catalyst (e.g., **Raney cobalt**); and (C) an effective amount of an additive comprising a compound selected from a divalent sulfur and a divalent selenium compound (e.g., selenophene).
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 7 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:312051 CAPLUS
DOCUMENT NUMBER: 136:325981
TITLE: Catalyst system and **process** for the hydrogenation of dinitriles into diamines and aminonitriles
INVENTOR(S): Allgeier, Alan M.; Koch, Theodore A.; Sengupta, Sourav K.
PATENT ASSIGNEE(S): E. I. Du Pont de Nemours & Co., USA
SOURCE: U.S., 6 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

US 6376714	B1	20020423	US 2001-871102		20010531
TW 593235	B	20040621	TW 2002-91110365		20020517
CA 2444442	AA	20021205	CA 2002-2444442		20020524
WO 2002096862	A2	20021205	WO 2002-US16374		20020524
WO 2002096862	A3	20030731			

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

EP 1392646	A2	20040303	EP 2002-739372		20020524

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

BR 2002010082	A	20040817	BR 2002-10082		20020524
CN 1531523	A	20040922	CN 2002-810915		20020524
JP 2004534778	T2	20041118	JP 2003-500042		20020524
PRIORITY APPLN. INFO.:			US 2001-871102	A	20010531
			WO 2002-US16374	W	20020524

AB A **process** for converting dinitriles into diamines and/or aminonitriles consists of forming a reaction mixture that comprises: (1) a dinitrile; (2) hydrogen; (3) a catalyst comprising a Group VIII element; and (4) one or more modifiers selected from quaternary ammonium hydroxides, quaternary ammonium cyanides, quaternary ammonium fluorides, quaternary phosphonium hydroxides, and quaternary ammonium thiocyanides. The reaction mixture contains less than a 1:1 molar ratio of solvent and the **process** is carried out at a pressure and temperature sufficient to convert at least a portion of the dinitrile (e.g., 1,6-hexanedinitrile) into a diamine (e.g., 1,6-diaminohexane) and, optionally, an aminonitrile (e.g., 6-**aminocapronitrile**).

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 8 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER:	2001:676740 CAPLUS
DOCUMENT NUMBER:	135:227379
TITLE:	Method and catalyst for hydrogenating nitriles into amines or aminonitriles
INVENTOR(S):	Boschat, Vincent; Leconte, Philippe
PATENT ASSIGNEE(S):	Rhodia Polyamide Intermediates, Fr.
SOURCE:	PCT Int. Appl., 21 pp. CODEN: PIXXD2
DOCUMENT TYPE:	Patent
LANGUAGE:	French
FAMILY ACC. NUM. COUNT:	1
PATENT INFORMATION:	

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001066511	A1	20010913	WO 2001-FR687	20010307

W: AU, BR, BY, CA, CN, CZ, ID, IL, IN, JP, KR, MX, PL, RO, RU, SG, SK, TR, UA, US, VN, ZA

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR

FR 2806081	A1	20010914	FR 2000-2997	20000308

FR 2806081	B1	20030314		
CA 2403210	AA	20010913	CA 2001-2403210	20010307
EP 1265845	A1	20021218	EP 2001-913956	20010307
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
BR 2001009261	A	20030603	BR 2001-9261	20010307
JP 2003525924	T2	20030902	JP 2001-565331	20010307
RU 2242460	C2	20041220	RU 2002-126613	20010307
US 2003144552	A1	20030731	US 2003-220821	20030110
US 6790994	B2	20040914		
PRIORITY APPLN. INFO.:			FR 2000-2997 A	20000308
			WO 2001-FR687 W	20010307

AB A method for hydrogenating nitriles into amines, as well as the total or partial hydrogenation of dinitriles into diamines or aminonitrile compds., is described using hydrogen in the presence of a hydrogenation catalyst (e.g., **Raney nickel** containing Co) and a strong mineral base (e.g., KOH) preferably derived from an alkaline or alkaline-earth metal. The catalyst used is subjected to conditioning by mixing the hydrogenation catalyst, a specific amount of strong mineral base, and a solvent in which the strong mineral base is hardly soluble The solvent is an amine compound such as **hexamethylenediamine** in the case of hydrogenation of **adiponitrile** into HMD and/or **aminocapronitrile.**

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 9 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:439662 CAPLUS
DOCUMENT NUMBER: 135:210668
TITLE: Reactivity and surface analysis studies on the deactivation of Raney Ni during **adiponitrile** hydrogenation
AUTHOR(S): Allgeier, Alan M.; Duch, Michael W.
CORPORATE SOURCE: E.I. duPont de Nemours Co., Wilmington, DE, 19880, USA
SOURCE: Chemical Industries (Dekker) (2001), 82(Catalysis of Organic Reactions), 229-239
CODEN: CHEIDI; ISSN: 0737-8025
PUBLISHER: Marcel Dekker, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The heterogeneous catalyst, Raney Ni, deactivates during the hydrogenation of **adiponitrile.** The present study shows that the deactivation **process** is general to α, ω-dinitriles of varying length and also occurs for 6-**aminocapronitrile** but does not occur with mononitriles such as butyronitrile. In contrast to a previously reported mechanism for Ni catalyst deactivation in acetonitrile hydrogenation, these reactivity trends implicate deposition of oligomeric secondary amines and thus blocking of active sites as the mechanism of deactivation. Electron spectroscopy for chemical anal. (ESCA) reveals an increase in C and N on deactivated samples compared to nondeactivated samples and supports the conclusions drawn from reactivity studies.

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 10 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:441758 CAPLUS
DOCUMENT NUMBER: 133:75638
TITLE: Method for **preparing** amines by hydrogenating nitriles in reactor

INVENTOR(S): Goodwin, Ralph T., III; Ward, Gregory J.
PATENT ASSIGNEE(S): Solutia Inc., USA
SOURCE: PCT Int. Appl., 16 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2000037424	A1	20000629	WO 1999-US29394		19991210
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM					
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG					
CA 2356560	AA	20000629	CA 1999-2356560		19991210
BR 9916490	A	20011218	BR 1999-16490		19991210
EP 1169296	A1	20020109	EP 1999-966130		19991210
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO					
JP 2002533319	T2	20021008	JP 2000-589496		19991210
AU 770554	B2	20040226	AU 2000-21746		19991210
RU 2233266	C2	20040727	RU 2001-120344		19991210
US 6281388	B1	20010828	US 1999-460051		19991213
PRIORITY APPLN. INFO.:			US 1998-113329P	P	19981222
			WO 1999-US29394	W	19991210

AB The method comprises feeding hydrogen and a nitrile (e.g., **adiponitrile**) into a reactor having a reaction medium containing a catalyst (e.g., **Raney nickel**), water and an inorg. base (e.g., alkali metal hydroxide); mixing with the reaction medium to give a uniform bulk concentration of the nitrile in ≥1 direction across the reactor to minimize the reactor volume; and hydrogenating the nitrile to form the amine (e.g., **hexamethylenediamine**). The reactor comprises a stirred tank reactor, a gas lift reactor, a tubular reactor or a bubble column reactor.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 11 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:335376 CAPLUS
DOCUMENT NUMBER: 132:349278
TITLE: Partial hydrogenation of dinitriles to amino nitriles
INVENTOR(S): Boschat, Vincent; Brunelle, Jean-Pierre
PATENT ASSIGNEE(S): Rhodia Fiber and Resin Intermediates, Fr.
SOURCE: PCT Int. Appl., 17 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

WO 2000027806		A1	20000518	WO 1999-FR2677	19991103
	W: BR, BY, CA, CN, CZ, ID, IN, JP, KR, MX, PL, RO, RU, SG, SK, UA, US, VN				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
FR 2785608		A1	20000512	FR 1998-14100	19981105
FR 2785608		B1	20001229		
CA 2349928		AA	20000518	CA 1999-2349928	19991103
BR 9915085		A	20010717	BR 1999-15085	19991103
EP 1127047		A1	20010829	EP 1999-954042	19991103
EP 1127047		B1	20030910		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, RO				
JP 2002539074		T2	20021119	JP 2000-580986	19991103
AT 249425		E	20030915	AT 1999-954042	19991103
RU 2220133		C2	20031227	RU 2001-115092	19991103
ES 2201795		T3	20040316	ES 1999-954042	19991103
US 6521779		B1	20030218	US 2001-831148	20010925
TW 464641		B	20011121	TW 1999-88119218	20011009
PRIORITY APPLN. INFO.:				FR 1998-14100 A	19981105
				WO 1999-FR2677 W	19991103

AB A dinitrile is hydrogenated to the corresponding amino nitrile in a liquid medium in the presence of a **Raney nickel** or cobalt catalyst containing Cu and/or Ag and/or Au and in the presence of an alkali or alkaline earth metal hydroxide. Thus, hydrogenation of a mixture of **adiponitrile** 24.0, **hexamethylenediamine** 24.0, H2O 5.3, KOH 0.064, and Raney Ni (1.7% Cu) 1.35 g at 50° under 2.5 MPa H for 321 min (to optimum yield) resulted in 82.3% conversion of **adiponitrile**: 60.3% to 6-**aminocapronitrile** and 20.9% to **hexamethylenediamine.**

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 12 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:335307 CAPLUS
DOCUMENT NUMBER: 132:336095
TITLE: **Raney cobalt** catalysts and **process** for hydrogenating organic compounds using them
INVENTOR(S): Harper, Mark Jay
PATENT ASSIGNEE(S): E. I. Du Pont de Nemours & Co., USA
SOURCE: PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000027526	A1	20000518	WO 1999-US25952	19991104
W: BR, CA, CN, ID, JP, KR, MX, SG				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 6156694	A	20001205	US 1998-186839	19981105
TW 590800	B	20040611	TW 1999-88119143	19991103
CA 2345523	AA	20000518	CA 1999-2345523	19991104
EP 1137484	A1	20011004	EP 1999-956905	19991104
EP 1137484	B1	20030924		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI

BR 9915248	A	20011030	BR 1999-15248	19991104
JP 2002529227	T2	20020910	JP 2000-580746	19991104
PRIORITY APPLN. INFO.:			US 1998-186839 A	19981105
			WO 1999-US25952 W	19991104

AB The catalysts comprise iron, cobalt, and a third metal selected from the group consisting of nickel, rhodium, ruthenium, palladium, platinum, osmium, iridium and mixts. of any of these metals. In the examples nickel is the third metal and the catalyst is used for hydrogenation of **adiponitrile** to 6-**aminocapronitrile** and **hexamethylenediamine.**

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 13 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:576901 CAPLUS
DOCUMENT NUMBER: 131:185369
TITLE: Method and catalysts for hydrogenating aliphatic α,ω-dinitriles into diamines or aminonitriles
INVENTOR(S): Voit, Guido; Ohlbach, Frank; Luyken, Hermann; Merger, Martin; Rehfinger, Alwin; Fischer, Rolf Hartmuth; Bassler, Peter; Ansmann, Andreas
PATENT ASSIGNEE(S): Basf A.-G., Germany
SOURCE: PCT Int. Appl., 16 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9944982	A2	19990910	WO 1999-EP1149	19990223
WO 9944982	A3	19991125		
W: AL, AU, BG, BR, BY, CA, CN, CZ, GE, HU, ID, IL, IN, JP, KR, KZ, LT, LV, MK, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, UA, US, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
DE 19809686	A1	19990909	DE 1998-19809686	19980306
CA 2322530	AA	19990910	CA 1999-2322530	19990223
AU 9934086	A1	19990920	AU 1999-34086	19990223
BR 9908504	A	20001205	BR 1999-8504	19990223
EP 1058677	A2	20001213	EP 1999-915533	19990223
EP 1058677	B1	20030108		
R: BE, DE, ES, FR, GB, IT, NL				
JP 2002505315	T2	20020219	JP 2000-534527	19990223
ES 2190648	T3	20030801	ES 1999-915533	19990223
TW 584620	B	20040421	TW 1999-88103427	19990305
US 6265602	B1	20010724	US 2000-622800	20000823
PRIORITY APPLN. INFO.:			DE 1998-19809686 A	19980306
			WO 1999-EP1149 W	19990223

AB Aliphatic α,ω-dinitriles (e.g., adipodinitrile) in the presence of a heterogeneous fixed-bed catalyst are hydrogenated into their corresponding diamines (e.g., 1,6-hexanediamine) or aminonitrile products with reduced formation of unwanted cyclic byproducts (e.g., **tetrahydroazepine**). The method is characterized in that the

reaction mixture contains 2-30 mmol Na, K, Rb, Cs, Mg, Ca, Sr, Ba, Mn, or their mixts. in the form of a basic salt, in relation to 10 mol of the aliphatic α,ω-dinitriles.

L8 ANSWER 14 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:753204 CAPLUS
DOCUMENT NUMBER: 132:3589
TITLE: Method for **preparing** amino nitriles and diamines
INVENTOR(S): Leconte, Philippe
PATENT ASSIGNEE(S): Rhodia Fiber and Resin Intermediates, Fr.
SOURCE: PCT Int. Appl., 14 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9959962	A1	19991125	WO 1999-FR1127	19990511
W: BR, BY, CA, CN, CZ, ID, IN, JP, KR, PL, RO, RU, SG, SK, UA, US, VN				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
FR 2778661	A1	19991119	FR 1998-6426	19980515
FR 2778661	B1	20000616		
CA 2332613	AA	19991125	CA 1999-2332613	19990511
BR 9910472	A	20010109	BR 1999-10472	19990511
EP 1077932	A1	20010228	EP 1999-918054	19990511
EP 1077932	B1	20030716		
R: BE, DE, ES, FR, GB, IT, NL				
JP 2002515478	T2	20020528	JP 2000-549581	19990511
RU 2210564	C2	20030820	RU 2000-131622	19990511
ES 2198910	T3	20040201	ES 1999-918054	19990511
TW 487694	B	20020521	TW 1999-88107919	19990515
US 6384283	B1	20020507	US 2001-674551	20010126

PRIORITY APPLN. INFO.: FR 1998-6426 A 19980515
WO 1999-FR1127 W 19990511

AB In **preparation** of an amino nitrile and a diamine by catalytic hydrogenation of a C3-12 aliphatic dinitrile, the final reaction mixture, from which the catalyst has been separated, is acidified with a mineral or organic acid before distilling the reaction products and the unreacted dinitrile. More specifically, the **process** concerns the **preparation** of 6-**aminocapronitrile** and **hexamethylenediamine** by hydrogenating **adiponitrile.** This method suppresses the formation of iminocyanocyclopentane as a byproduct.
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 15 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:354474 CAPLUS
DOCUMENT NUMBER: 130:353934
TITLE: Method and catalysts for the continuous hydrogenation of dinitriles into aminonitriles
INVENTOR(S): Boschat, Vincent; Leconte, Philippe; Rochette, Daniel; Sever, Lionel
PATENT ASSIGNEE(S): Rhodia Fiber and Resin Intermediates, Fr.
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9926917	A1	19990603	WO 1998-FR2479	19981119
W: BR, BY, CA, CN, CZ, ID, JP, KR, PL, RO, RU, SG, SK, UA, US, VN				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
FR 2771091	A1	19990521	FR 1997-14809	19971120
FR 2771091	B1	20000114		
CA 2310145	AA	19990603	CA 1998-2310145	19981119
EP 1032558	A1	20000906	EP 1998-955702	19981119
EP 1032558	B1	20040225		
R: BE, DE, ES, FR, GB, IT, NL				
JP 2001524464	T2	20011204	JP 2000-522075	19981119
RU 2181716	C2	20020427	RU 2000-115585	19981119
CN 1117073	B	20030806	CN 1998-812742	19981119
TW 467884	B	20011211	TW 1998-87119263	19981120
BR 2000002573	A	20020205	BR 2000-2573	20000602
US 6232488	B1	20010515	US 2000-554887	20000919
PRIORITY APPLN. INFO.:			FR 1997-14809 A	19971120
			WO 1998-FR2479 W	19981119

OTHER SOURCE(S): MARPAT 130:353934

AB Aliphatic dinitriles (e.g., **adiponitrile**) are continuously hydrogenated into their corresponding aminonitriles (e.g., **aminocapronitrile**) in the presence of a hydrogenation catalyst (e.g., **Raney nickel**) nondissolved in the reaction medium. The hydrogenation is carried out in a reactor capable of separating the hydrogenate and the catalyst in a zone where the gas-liquid transfer is limited or nonexistent, said separation and recycling of the catalyst being carried out in a time interval of ≤30 min.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 16 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:694948 CAPLUS
DOCUMENT NUMBER: 132:37222
TITLE: Selective hydrogenation of **adiponitrile** over a Raney Ni-P amorphous catalyst
AUTHOR(S): Li, Hexing; Xu, Yeping; Deng, Jing-Fa
CORPORATE SOURCE: Department of Chemistry, Fudan University, Shanghai, Peop. Rep. China
SOURCE: New Journal of Chemistry (1999), 23(11), 1059-1061
CODEN: NJCHE5; ISSN: 1144-0546
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Selective hydrogenation of **adiponitrile** to **hexamethylenediamine** was carried out using Raney Ni-P amorphous catalyst.

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 17 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1998:558759 CAPLUS
DOCUMENT NUMBER: 129:161948

TITLE: Distillative method for the separation of an imine from a mixture containing an amine and an imine
INVENTOR(S): Luyken, Hermann; Bassler, Peter; Rehfinger, Alwin
PATENT ASSIGNEE(S): BASF A.-G., Germany
SOURCE: Ger. Offen., 4 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19704614	A1	19980813	DE 1997-19704614	19970207
CA 2279369	AA	19980813	CA 1998-2279369	19980130
WO 9834900	A1	19980813	WO 1998-EP504	19980130
W: AL, AU, BG, BR, BY, CA, CN, CZ, GE, HU, ID, IL, JP, KR, KZ, LT, LV, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, UA, US, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9860981	A1	19980826	AU 1998-60981	19980130
EP 964847	A1	19991222	EP 1998-905374	19980130
EP 964847	B1	20020102		
R: BE, DE, ES, FR, GB, IT, NL				
JP 2001512429	T2	20010821	JP 1998-533725	19980130
ES 2170476	T3	20020801	ES 1998-905374	19980130
TW 486458	B	20020511	TW 1998-87101636	19980207
US 6252115	B1	20010626	US 1999-341948	19990721
PRIORITY APPLN. INFO.:			DE 1997-19704614 A	19970207
			WO 1998-EP504 W	19980130

AB Imines (e.g., **tetrahydroazepine**) are removed either partially or totally from mixts. containing an amine (e.g., **hexamethylenediamine**) and an imine by the addition of an inert compound (e.g., **adiponitrile**) having a b.p. above that of the amine and then distilling the mixture so as to produce a purified amine overhead product and a bottoms product containing the inert compound and the imine.

L8 ANSWER 18 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1998:118626 CAPLUS
DOCUMENT NUMBER: 128:141170
TITLE: Simultaneous **preparation** of caprolactam and **hexamethylenediamine** from **adiponitrile**
INVENTOR(S): Bassler, Peter; Luyken, Hermann; Achhammer, Gunther; Witzel, Tom; Fuchs, Eberhard; Fischer, Rolf; Schnurr, Werner
PATENT ASSIGNEE(S): BASF A.-G., Germany
SOURCE: U.S., 11 pp., Cont.-in-part of U.S. Ser. No. 375,574, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5717090	A	19980210	US 1995-565214	19951130
DE 19500222	A1	19960711	DE 1995-19500222	19950105

PRIORITY APPLN. INFO.: DE 1995-19500222 A 19950105
US 1995-375574 B2 19950118

AB The title **process** is disclosed, in which (a) **adiponitrile** is partially hydrogenated to give a mixture containing essentially 6-**aminocapronitrile**, **hexamethylenediamine**, ammonia, **adiponitrile** and **hexamethyleneimine**; (b) the mixture obtained in (a) is subjected to a distillation to give ammonia as the top product and a bottom product I, (c) the bottom product I containing essentially 6-**aminocapronitrile**, **hexamethylenediamine**, **adiponitrile**, **hexamethyleneimine**, inert compound A and ammonia, the ammonia content being lower than that of the mixture used in stage (b), is subjected to a second distillation to give a mixture comprising the inert compound A and ammonia as the top product and a bottom product II, (d) the bottom product II is subjected, in a third column, to a distillation to give the inert compound A as the top product and a bottom product III, (e) the bottom product III is subjected, in a fourth column, to a distillation to give a top product KP1, containing essentially **hexamethyleneimine** and a bottom product IV, (f) the top product KP1 is subjected, in a fifth column, to a distillation to give a top product KP2, which contains essentially **hexamethyleneimine**, and (g) the bottom product IV containing essentially 6-**aminocapronitrile** and **adiponitrile** is subjected, in a sixth column, to a distillation to give 6-**aminocapronitrile**. The 6-**aminocapronitrile** thus obtained is then cyclized to give caprolactam.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 19 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:500173 CAPLUS
DOCUMENT NUMBER: 127:109324
TITLE: Manufacture of caprolactam and **hexamethylenediamine** simultaneously from **adiponitrile**
INVENTOR(S): Achhammer, Guenther; Basler, Peter; Fischer, Rolf; Fuchs, Eberhard; Luyken, Hermann; Schnurr, Werner; Voit, Guido; Hilprecht, Lutz
PATENT ASSIGNEE(S): BASF A.-G., Germany
SOURCE: Ger. Offen., 12 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19548289	A1	19970626	DE 1995-19548289	19951222
CA 2237727	AA	19970703	CA 1996-2237727	19961211
CA 2237727	C	20040224		
WO 9723454	A1	19970703	WO 1996-EP5521	19961211
W: AU, BG, BR, BY, CA, CN, CZ, FI, GE, HU, IL, JP, KR, KZ, LV, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, UA, US, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9713696	A1	19970717	AU 1997-13696	19961211

EP 876341	A1	19981111	EP 1996-943913		19961211
EP 876341	B1	20000809			
R: BE, DE, ES, FR, GB, IT, NL					
BR 9612107	A	19990223	BR 1996-12107		19961211
JP 2000502660	T2	20000307	JP 1997-523263		19961211
ES 2149514	T3	20001101	ES 1996-943913		19961211
US 6147208	A	20001114	US 1998-91130		19980616
CN 1375489	A	20021023	CN 2001-132635		20010905
PRIORITY APPLN. INFO.:			DE 1995-19548289	A	19951222
			WO 1996-EP5521	W	19961211

AB **Adiponitrile** (I) is partially hydrogenated, and the product containing 6-**aminocapronitrile** (II), **hexamethylenediamine** (III), NH3, I, and **hexamethyleneimine** is passed through 5 fractionation columns to sep. out III and II, of which II is cyclized in a further step to caprolactam.

L8 ANSWER 20 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1998:1407 CAPLUS
DOCUMENT NUMBER: 128:50297
TITLE: Method for filtering a three-phase catalytic reaction mixture
INVENTOR(S): Perrona, Philippe; Sever, Lionel
PATENT ASSIGNEE(S): Rhone-Poulenc Fiber and Resin Intermediates, Fr.
SOURCE: PCT Int. Appl., 13 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 9746306	A1	19971211	WO 1997-FR937		19970529
W: BR, BY, CA, CN, CZ, JP, KR, MX, PL, RO, RU, SG, SK, UA, US, VN					
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE					
FR 2749191	A1	19971205	FR 1996-7169		19960604
FR 2749191	B1	19980717			
EP 925106	A1	19990630	EP 1997-926054		19970529
EP 925106	B1	20010822			
R: BE, DE, FR, GB, IT, NL, RO					
CN 1223600	A	19990721	CN 1997-195789		19970529
CN 1112230	B	20030625			
BR 9709525	A	19990810	BR 1997-9525		19970529
JP 2000500701	T2	20000125	JP 1998-500260		19970529
JP 3311359	B2	20020805			
RU 2178334	C2	20020120	RU 1999-100051		19970529
PL 184163	B1	20020930	PL 1997-330310		19970529
CZ 291317	B6	20030115	CZ 1998-3961		19970529
CA 2257346	C	20030923	CA 1997-2257346		19970529
CA 2257346	AA	19971211			
SK 283673	B6	20031104	SK 1998-1661		19970529
MX 9810151	A	20000131	MX 1998-10151		19981202
KR 2000016361	A	20000325	KR 1998-709935		19981204
US 6478968	B1	20021112	US 1999-194907		19990317
PRIORITY APPLN. INFO.:			FR 1996-7169	A	19960604
			WO 1996-FR7169	W	19960604
			WO 1997-FR937	W	19970529

AB A three-phase reaction mixture comprising a liquid phase containing nitriles, an

undissolved solid catalytic phase comprising Raney Ni and/or Co or supported metal catalysts and a gas phase (H2) is filtered tangentially using a single membrane filter for recycling the active catalyst while recovering the filtrate containing the reaction products. The hydrogenation reaction mixture containing nitriles, aminonitriles, and amines, H2, and Ni or Co or supported metal catalysts is filtered using a nanoporous or microporous membrane on a flat or tubular support, preferably ceramic, with active layer from α-alumina, zirconia, titania, or graphite fibers on a graphite, alumina, zirconia or titania support. In an example, a mixture containing **adiponitrile** 20.1%, **aminocapronitrile** 51.4%, **hexamethylenediamine** 9.1%, water 14.2%, and **Raney nickel** 5.2% under H2 at 2 bar and 55°C was pumped past a zirconia membrane on graphite support with average pore diameter 25-50 nm and 300 kD cutoff, and the catalyst-containing retentate was returned to the reactor. The permeate was recovered at atmospheric pressure.

L8 ANSWER 21 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:317793 CAPLUS
DOCUMENT NUMBER: 126:294889
TITLE: Metallic compounds useful as catalysts and their **preparation**
INVENTOR(S): Cordier, Georges; Popa, Jean-Michel
PATENT ASSIGNEE(S): Rhone-Poulenc Fiber and Resin Intermediates, Fr.; Cordier, Georges; Popa, Jean-Michel
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 9710052	A1	19970320	WO 1996-FR1406		19960912
W: BR, CN, JP, KR, RU, SG, US					
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE					
FR 2738757	A1	19970321	FR 1995-11064		19950915
FR 2738757	B1	19971031			
CN 1196004	A	19981014	CN 1996-196954		19960912
CN 1084226	B	20020508			
EP 874686	A1	19981104	EP 1996-931116		19960912
EP 874686	B1	20020508			
EP 874686	B2	20050914			
R: BE, DE, FR, GB, IT, NL					
JP 10511697	T2	19981110	JP 1997-511710		19960912
JP 3162405	B2	20010425			
BR 9610161	A	19990105	BR 1996-10161		19960912
RU 2189376	C2	20020920	RU 1998-107341		19960912
US 6005145	A	19991221	US 1998-43375		19980803
PRIORITY APPLN. INFO.:			FR 1995-11064	A	19950915
			WO 1996-FR1406	W	19960912

OTHER SOURCE(S): MARPAT 126:294889
AB The compds. contain ≥1 divalent metal, at least partially in a reduced state, textured by a phase comprising one or more dopant metals selected from chromium, molybdenum, iron, manganese, titanium, vanadium, gallium, indium, bismuth, yttrium, cerium, lanthanum and other trivalent

lanthanides, in oxide form. When used as catalysts, the metal compds. have an efficiency equivalent to that of **Raney cobalt** or nickel. They can be used more particularly as hydrogenating catalysts, for hydrogenating various families of nitrogen compds., preferably nitriles.

L8 ANSWER 22 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:761967 CAPLUS
DOCUMENT NUMBER: 127:352389
TITLE: **Process** for the electrochemical reduction of organic compounds
INVENTOR(S): Huber, Gunther; Weiper-Idelmann, Andreas; Kramer, Andreas; Golombek, Rolf; Frede, Markus; Spiske, Luise; Schehlmann, Karl Heinz; Steuer, Volker
PATENT ASSIGNEE(S): BASF A.-G., Germany
SOURCE: Eur. Pat. Appl., 17 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 808920	A1	19971126	EP 1997-108224	19970521
EP 808920	B1	20000426		
R: BE, CH, DE, ES, FR, GB, IT, LI, NL				
DE 19620861	A1	19971127	DE 1996-19620861	19960523
US 5919349	A	19990706	US 1997-859034	19970520
ES 2146438	T3	20000801	ES 1997-108224	19970521
JP 10046381	A2	19980217	JP 1997-133688	19970523
CA 2302769	AA	19990318	CA 1997-2302769	19970905
WO 9913132	A1	19990318	WO 1997-EP4832	19970905
W: BR, CA, CN, ID, KR, MX, RU, SG				

PRIORITY APPLN. INFO.: DE 1996-19620861 A 19960523
WO 1997-EP4832 A 19970905

AB The electroredn. of organic compds. is brought about by contacting the organic compound with a cathode consisting of a substrate of elec. conducting porous material (e.g. Raney Ni or Pd on C) and an elec.-conducting, cathodically polarized coating formed on it by in-situ deposition. The cathodically polarized coating consists of a metal, a conducting metal oxide or a carbonaceous material (such as active C), or a mixture of two or more of these materials. The organic compound to be reduced exhibits at least 1 of the following reducible groups or bonds: C-C double bonds, C-C triple bonds, aromatic C-C links, carbonyl groups, thiocarbonyl groups, carboxyl groups, ester groups, C-N triple bonds, C-N double bonds, aromatic C-N links, nitro groups, nitroso groups, and C-halogen simple bonds. Thus, the organic compds. to be electrochem. reduced can be nitriles, dinitriles or dinitro compds.; saturated and unsatd. ketones; and aminocarboxylic acids. The electrochem. reduction **makes** possible, on the one hand, high space-time yields and, on the other hand, a high selectivity in the case of multiply reducible compds. which avoids the formation of hydrogen and can be used on an industrial scale. In an example, a divided electrolytic cell was used with anode and cathode surfaces of 100 cm2 and a filter plate covered with a membrane of steel DIN 1.4571 serving as the cathode. The anode was **made** of Ti coated with a mixture of Ta and Ir oxides for oxygen evolution. The separation medium was a Nafion-324 membrane. The reaction was carried out discontinuously. A 5% aqueous H2SO4 solution was used as the anolyte. A catholyte was produced, in which vinclozolin

[(RS)-3-(3,5-dichlorophenyl)-5-methyl-5-vinyl-oxazoline-2,4-dione] was dissolved in a mixture containing H2O, MeOH, iso-BuOH, and HOAc. Graphite powder was added to the circulating catholyte in a closed cycle and dispersed in the circulating liquid The deposition was accomplished while the catholyte circuit was closed and the filter outlet was open. The pressure in the cathode chamber rose to 4 + 105 Pa, and the filtrate output amounted to 12 L/h. In the same manner, the catalyst (Degussa type E101N/D, 10% Pd on C) was addnl. deposited. Finally, for 30 min, a d.c. of 20 A was imposed, which required a cell voltage of 35 V at the beginning to 7.5 V at the end of the experiment According to titrimetric determination, 850 ppm Cl- were detected in the discharge (the catholyte was free from Cl- at the start of the experiment), which corresponded to a conversion of 90%. A gas-chromatog. evaluation of the obtained product was **made**.

L8 ANSWER 23 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1996:319149 CAPLUS
DOCUMENT NUMBER: 125:89588
TITLE: **Preparation** of aliphatic α,ω-aminonitriles
INVENTOR(S): Schnurr, Werner; Fischer, Rolf; Bassler, Peter; Harder, Wolfgang
PATENT ASSIGNEE(S): BASF A.-G., Germany
SOURCE: U.S., 3 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5512697	A	19960430	US 1995-370606	19950110
DE 4446894	A1	19960704	DE 1994-4446894	19941227
WO 9620165	A1	19960704	WO 1995-EP4984	19951216
W: AU, BG, BR, BY, CA, CN, CZ, FI, HU, JP, KR, KZ, MX, NO, NZ, PL, RU, SG, SK, UA				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9643046	A1	19960719	AU 1996-43046	19951216
EP 800507	A1	19971015	EP 1995-941717	19951216
EP 800507	B1	19990623		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE				
CN 1171777	A	19980128	CN 1995-197138	19951216
CN 1089751	B	20020828		
BR 9510372	A	19980602	BR 1995-10372	19951216
JP 10511371	T2	19981104	JP 1995-520174	19951216
AT 181548	E	19990715	AT 1995-941717	19951216
ES 2135108	T3	19991016	ES 1995-941717	19951216
RU 2153489	C2	20000727	RU 1997-112896	19951216
PL 181529	B1	20010831	PL 1995-320993	19951216
CZ 288850	B6	20010912	CZ 1997-1977	19951216
BG 63300	B1	20010928	BG 1997-101632	19970617
FI 9702761	A	19970626	FI 1997-2761	19970626
PRIORITY APPLN. INFO.:			DE 1994-4446894 A	19941227
			WO 1995-EP4984 W	19951216

OTHER SOURCE(S): MARPAT 125:89588
AB Aliphatic α,ω-aminonitriles useful for **preparation** of cyclic lactams are **prepared** by partial hydrogenation of aliphatic

α,ω-dinitriles at elevated temps. and superatmospheric pressure in the presence of a base and of a hydrogenation catalyst, by carrying out the hydrogenation in the presence of ammonia and LiOH or of a compound which gives LiOH during the hydrogenation. Thus, hydrogenation of **adiponitrile** using **Raney nickel** catalyst in the presence of ammonia and LiOH for 180 min gave 6-**aminocapronitrile** with 79.4% selectivity and 93% conversion.

L8 ANSWER 24 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1996:323143 CAPLUS
DOCUMENT NUMBER: 124:342640
TITLE: **Process** and Group IVB element-doped **Raney nickel** catalysts for the hydrogenation of nitriles into amines
INVENTOR(S): Cordier, Georges; Fouilloux, Pierre; Laurain, Nathalie; Spindler, Jean Francis
PATENT ASSIGNEE(S): Rhone-Poulenc Chimie SA, Fr.
SOURCE: Fr. Demande, 14 pp.
CODEN: FRXXBL
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2722784	A1	19960126	FR 1994-9256	19940721
FR 2722784	B3	19960906		
PRIORITY APPLN. INFO.:			FR 1994-9256	19940721

OTHER SOURCE(S): CASREACT 124:342640; MARPAT 124:342640
AB Nitriles (e.g., **adiponitrile**) are hydrogenated into amines (e.g., **hexamethylenediamine**) in the presence of a base (e.g., NaOH, KOH) in a solvent (e.g., EtOH) using a **Raney nickel** catalyst doped with a Group IVB element (e.g., Ti), where the dopant/Ni weight ratio is 0.05-10%.

L8 ANSWER 25 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1998:377343 CAPLUS
DOCUMENT NUMBER: 129:153993
TITLE: Heterogeneous triple bond electroreduction of saturated and unsaturated nitriles
AUTHOR(S): Jitaru, Maria; Lessard, Jean; Lowy, Daniel A.
CORPORATE SOURCE: Chemistry Research Group, Babes-Bolyai University, Cluj-Napoca, RO-3400, Rom.
SOURCE: Studia Universitatis Babes-Bolyai, Chemia (1996), 41(2), 70-78
CODEN: SUBCAB; ISSN: 1224-7154
PUBLISHER: Studia Universitatis Babes-Bolyai
DOCUMENT TYPE: Journal
LANGUAGE: English
AB An account on the electroredn. of acrylonitrile to allylamine (AA), and of the catalytic electrohydrogenation of **adiponitrile** to **hexamethylenediamine** (HMDA) is **made.** In both **synthesis** porous nickel Raney electrodes were used as the cathode. The **preparation** procedure of the electrodes involved the co-deposition and electrochem. co-deposition of Ni/Zn and Ni/Al alloys, followed by the chemical activation of the electrode surface, in alkaline media are described. An improved adherence and compactness of the metallic deposits were achieved by treating the electrode surface with an aqueous

surfactant solution The effects of c.d., supporting electrolyte composition, pH and temperature on product selectivity were studied. When the **synthesis** of AA was performed in neutral supporting electrolyte, at 288-293 K and at current densities not exceeding 70 mA cm-2, current yields up to 95% were reached. Also, HMDA was obtained with good selectivities (≥85%) in a filter press type cell, in neutral supporting electrolytes, at 275-283 K.

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 26 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1995:789442 CAPLUS
DOCUMENT NUMBER: 123:170544
TITLE: Method for the catalytic hydrogenation of nitriles into amines in the presence of doped **Raney nickel** catalysts
INVENTOR(S): Cordier, Georges; Fouilloux, Pierre; Laurain, Nathalie; Spindler, Jean-Francis
PATENT ASSIGNEE(S): Rhone-Poulenc Chimie SA, Fr.
SOURCE: PCT Int. Appl., 18 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9518090	A1	19950706	WO 1994-FR1478	19941216
W: BR, CN, JP, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 737181	A1	19961016	EP 1995-903847	19941216
EP 737181	B1	19990224		
R: BE, DE, ES, FR, GB, IE, IT, NL, PT				
CN 1141031	A	19970122	CN 1994-194695	19941216
CN 1075806	B	20011205		
BR 9408460	A	19970805	BR 1994-8460	19941216
JP 3340439	B2	20021105	JP 1995-517802	19941216
US 5777166	A	19980707	US 1996-663097	19961125
PRIORITY APPLN. INFO.:			FR 1993-16008 A	19931228
			WO 1994-FR1478 W	19941216

OTHER SOURCE(S): MARPAT 123:170544
AB The reduction of nitriles (e.g., **adiponitrile**) into amines (e.g., **hexamethylenediamine**) using Raney catalysts doped by ≥1 Group IVb metal (using a doping element/Ni ratio of 0.05-10%)is accomplished by conducting the hydrogenation in a solvent suitable for the nitrile substrate to be hydrogenated, and using at ≥1 alkaline or alkaline-earth metal hydroxide.

L8 ANSWER 27 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1995:905396 CAPLUS
DOCUMENT NUMBER: 123:290375
TITLE: **Preparation** of a catalyst for the hydrogenation of nitriles into amines
INVENTOR(S): Besson, Michele; Cordier, Georges; Fouilloux, Pierre; Masson, Jacqueline
PATENT ASSIGNEE(S): Rhone-Poulenc Chimie SA, Fr.
SOURCE: PCT Int. Appl., 19 pp.

CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 9517960	A1	19950706	WO 1994-FR1477		19941216
W: BR, CN, JP, KR, RU, US					
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE					
EP 737101	A1	19961016	EP 1995-903846		19941216
EP 737101	B1	19980923			
R: BE, DE, ES, FR, GB, IT, NL					
CN 1139392	A	19970101	CN 1994-194694		19941216
CN 1082389	B	20020410			
JP 09503439	T2	19970408	JP 1994-517801		19941216
JP 2851439	B2	19990127			
BR 9408459	A	19970805	BR 1994-8459		19941216
RU 2126297	C1	19990220	RU 1996-116852		19941216
US 5801286	A	19980901	US 1996-663098		19960923
PRIORITY APPLN. INFO.:			FR 1993-16007	A	19931228
			WO 1994-FR1477	W	19941216

AB Active and selective catalysts of the Raney Ni type for the catalytic hydrogenation of nitriles into amines and, especially dinitriles such as **adiponitrile** (ADN) into diamines such as diamine hexamethylene (DHM), are **prepared** by doping an acidic suspension of Raney Ni with a solution of ≥1 metal addition element from transition metal groups, i.e., Groups IVB, VB, and VIB.

L8 ANSWER 28 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1995:909469 CAPLUS
DOCUMENT NUMBER: 123:290374
TITLE: Catalyst **preparation** for hydrogenating nitriles into amines
INVENTOR(S): Cordier, Georges; Fouilloux, Pierre; Laurain, Nathalie
PATENT ASSIGNEE(S): Rhone-Poulenc Chimie SA, Fr.
SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9517959	A1	19950706	WO 1994-FR1476	19941216
W: BR, CN, JP, KR, RU, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 737100	A1	19961016	EP 1995-903845	19941216
EP 737100	B1	19980923		
R: BE, DE, ES, FR, GB, IT, NL				
CN 1139391	A	19970101	CN 1994-194680	19941216
CN 1085560	B	20020529		
JP 09505770	T2	19970610	JP 1994-517800	19941216
JP 2851438	B2	19990127		
BR 9408458	A	19970805	BR 1994-8458	19941216
RU 2131297	C1	19990610	RU 1996-116987	19941216
US 5840989	A	19981124	US 1996-663099	19960924

PRIORITY APPLN. INFO.: FR 1993-16006 A 19931228
WO 1994-FR1476 W 19941216

AB Active, selective, and stable Raney Ni catalysts for hydrogenation of nitriles into amines are doped with ≥1 transition metal elements, i.e., from Groups IIB, IVB to VIIB of the periodic table, in chelated form. Thus, a precursor Al Ni alloy containing Al at ≤6, preferably <5, especially 2.5-2.4 weight% (Ni basis), is contacted with 6N soda, and also with an acidic dopant solution, e.g., of Ti tartrate or Cr tartrate, and the suspension is refluxed in 6N soda for 4 h with intermediate washing with boiling 1-6N soda to obtain the doped catalyst.

L8 ANSWER 29 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1995:534176 CAPLUS
DOCUMENT NUMBER: 123:55064
TITLE: Influence of the medium on hydrogenation of 2-methylglutaronitrile. Selective access to 2-methylpentane diamine or β-picoline after dehydrogenation
AUTHOR(S): Cordier, Georges
CORPORATE SOURCE: UMR 45 CNRS/RP, Rhone-Poulenc Industrialisation, Decines, Fr.
SOURCE: Chemical Industries (Dekker) (1995), 62(Catalysis of Organic Reactions), 285-94
CODEN: CHEIDI; ISSN: 0737-8025
PUBLISHER: Dekker
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A conference. The 2-methylglutaronitrile (I) is obtained as a byproduct of the important **adiponitrile** production It, nevertheless, gives rise to interesting chemical transformations. In particular, its hydrogenation can produce 2-methylpentanediamine, a substitute for **hexamethylenediamine** in polyamide or polyurethane compds. The 3-methylpiperidine, also produced by hydrogenation of I, can be an interesting intermediate for β-picoline production involved in the **synthesis** of PP vitamin. Using **Raney nickel** as the catalyst, hydrogenation reactions were performed in various liquid phase compns. 2-Methylpentanediamine was obtained very selectively. The reaction product can be used itself as solvent. Addition of dry ammonia in ethanol in the place of isopropanol / KOH or NaOH medium leads to a mixture of 2-methylpentanediamine, 3-methylpiperidine and some heavy byproducts. This mixture can be cyclized and dehydrogenated to β-picoline (3-methylpyridine) on a special and very efficient Pd/SiO2 catalyst. The two **processes** have been patented by Rhone-Poulenc.

L8 ANSWER 30 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1993:603018 CAPLUS
DOCUMENT NUMBER: 119:203018
TITLE: **Preparation** of 6-**aminocapronitrile**
INVENTOR(S): Sanchez, Kathryn Mary
PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co., USA
SOURCE: PCT Int. Appl., 7 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

WO 9316034	A1	19930819	WO 1993-US603	19930129
W: BR, KR				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 5296628	A	19940322	US 1992-836782	19920213
EP 642493	A1	19950315	EP 1993-904590	19930129
EP 642493	B1	19961030		
R: FR, GB				
BR 9305918	A	19970916	BR 1993-5918	19930129
PRIORITY APPLN. INFO.:			US 1992-836782 A	19920213
			WO 1993-US603 W	19930129

OTHER SOURCE(S): CASREACT 119:203018

AB Title compound (I) is **prepared** in high yield and selectivity by hydrogenation at 200-1000 psig of **adiponitrile** (II) at 50-90° in presence of a base, using Raney Ni catalyst and a low valent transition metal complex. MeOH, II, aqueous NaOH, Raney Ni and W(CO)6 were reacted at 500 psi H at 65° to give I. At a conversion of 96% selectivity was 88%, whereas at a conversion of <60%, the selectivity to I was 100%.

L8 ANSWER 31 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1993:603015 CAPLUS
DOCUMENT NUMBER: 119:203015
TITLE: **Process** for the **preparation** of an aminonitrile by partial hydrogenation of a nitrile compound with two or more nitrile groups
INVENTOR(S): Bosman, Hubertus Johannes Mechtilda; Vandenbooren, Franciscus Henricus Antonius Maria Joseph
PATENT ASSIGNEE(S): DSM N. V., Neth.
SOURCE: PCT Int. Appl., 16 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9312073	A1	19930624	WO 1992-NL230	19921217
W: AU, BB, BG, BR, CA, CS, FI, HU, JP, KP, KR, LK, MG, MN, MW, NO, NZ, PL, RO, RU, SD, UA, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, SN, TD, TG				
NL 9102112	A	19930716	NL 1991-2112	19911218
AU 9332689	A1	19930719	AU 1993-32689	19921217
EP 618895	A1	19941012	EP 1993-901480	19921217
EP 618895	B1	19970903		
R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE				
JP 07502040	T2	19950302	JP 1992-510801	19921217
AT 157649	E	19970915	AT 1993-901480	19921217
ES 2108256	T3	19971216	ES 1993-901480	19921217
US 5574181	A	19961112	US 1994-256061	19940817
PRIORITY APPLN. INFO.:			NL 1991-2112 A	19911218
			WO 1992-NL230 A	19921217

OTHER SOURCE(S): CASREACT 119:203015

AB Aminonitriles were **prepared** by partial hydrogenation of di- or polynitriles in the presence of an alkanolate-treated Group 8 metal-containing catalyst under almost anhydrous conditions. Thus, Degussa BLM 112W Raney Ni was washed with anhydrous MeOH and then stirred with KOMe in MeOH. The

treated catalyst was washed with diaminoethane and then used for hydrogenation of succinonitrile in diaminoethane at 70 atm and 80° while stirring at 1500 rpm for 300 S to give 100% conversion of succinonitrile to a product mixture comprising aminobutyronitrile 85, diaminolactone 14, and pyrrolidine 1 mol %.

L8 ANSWER 32 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1994:30458 CAPLUS
DOCUMENT NUMBER: 120:30458
TITLE: Transfer hydrogenation of nitriles using amine donors
INVENTOR(S): Weigert, Frank J.
PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co., USA
SOURCE: U.S., 5 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5237088	A	19930817	US 1992-857344	19920325
PRIORITY APPLN. INFO.:			US 1992-857344	19920325

OTHER SOURCE(S): CASREACT 120:30458; MARPAT 120:30458
AB R1CN were transfer hydrogenated using R2CH2NH2 [R1, R2= alkyl, X(CH2)y, (CH2)kNMe2, (CH2)mPh, (CH2)nNH(CH2)n+1NH2, (CH2)pNH(CH2)pCN; x = cyano, H2NCH2; k = 2-17; m = 1-17; n, p = 3-11; yr = 3-16] at 20-200° in the presence of Raney Ni and in the absence of H. Thus, hexanenitrile (I) 3.2 g and octylamine (II) 3.1 g were heated at 100° with 3.4 g Raney Ni for 45 min to give a mixture containing I 31, II 48, hexylamine 8.1, and octylnitrile 2.7 area %.

L8 ANSWER 33 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1992:427392 CAPLUS
DOCUMENT NUMBER: 117:27392
TITLE: **Synthesis** of non-cyclic aliphatic polyamines
INVENTOR(S): Lin, You Jyh; Schmidt, Stephen R.; Abhari, Ramin
PATENT ASSIGNEE(S): W. R. Grace & Co., USA
SOURCE: U.S., 5 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5105015	A	19920414	US 1991-709944	19910604
PRIORITY APPLN. INFO.:			US 1991-709944	19910604

AB Polyamines are **prepared** by hydrogenation of polynitriles in fixed-bed reactors containing Cr- and Ni-promoted Raney Co catalysts in the presence of NH3. **Hexamethylenediamine** was **prepared** from **adiponitrile** in 95.8% selectivity using the above **process** .

L8 ANSWER 34 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1991:582392 CAPLUS
DOCUMENT NUMBER: 115:182392
TITLE: Intermediates in the catalytic hydrogenation of

nitriles
AUTHOR(S): Marion, P.; Grenouiilet, P.; Jenck, J.; Joucla, M.
CORPORATE SOURCE: Rhone Poulenc Ind., Decines-Charpieu, 69151, Fr.
SOURCE: Studies in Surface Science and Catalysis (1991), 59(Heterog. Catal. Fine Chem. 2), 329-34
CODEN: SSCTDM; ISSN: 0167-2991
DOCUMENT TYPE: Journal
LANGUAGE: English
AB In the course of the catalytic hydrogenation of α,ω-dinitriles over **Raney nickel**, byproducts are obtained from C-N and C-C bond formation. The mechanism of the formation of these compds. was investigated. Cyclic and linear secondary amines can result from the same secondary imine through a transimination **process** involving a ring-chain tautomerism. Stereochem. results for 2-(aminomethyl)cyclopentylamine (I) are in accord with a specific cyclization pathway favored by an intramol. H bond giving rise to the cis isomer from **aminocapronitrile**, unfavored in the case of **adiponitrile**, which leads to trans-I as the major isomer.

L8 ANSWER 35 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1991:71087 CAPLUS
DOCUMENT NUMBER: 114:71087
TITLE: The electrochemical **synthesis** of aminonitriles. I. H-cell studies with **adiponitrile** and azelanitrile
AUTHOR(S): Song, Y.; Pintauro, P. N.
CORPORATE SOURCE: Dep. Chem. Eng., Tulane Univ., New Orleans, LA, 70118, USA
SOURCE: Journal of Applied Electrochemistry (1991), 21(1), 21-7
CODEN: JAELBJ; ISSN: 0021-891X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Adiponitrile** and azelanitrile were electrochem. hydrogenated to their corresponding aminonitriles in a divided H-cell using **Raney nickel** powder as the cathode material. The effects of current, temperature, and solvent/supporting electrolyte composition on product selectivities were investigated. Syntheses of the fully hydrogenated diamine byproduct increased with increasing current and solution temperature When a 0.8 M **adiponitrile**/alc./water/ammonium acetate electrolyte was hydrogenated at temps. of 35-45°, 6-**aminocapronitrile** selectivities in the range of 79-97.permill. and current efficiencies of 50-60.permill. were obtained. The optimum applied current was 60 mA for each 2.5 g of catalyst (an apparent c.d. of 4.8 mA cm-2). For the case of azelanitrile, reaction selectivities for the partially hydrogenated 9-aminononanenitrile product ranged from 80-93%.

L8 ANSWER 36 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1985:167324 CAPLUS
DOCUMENT NUMBER: 102:167324
TITLE: Production and separation of amines
INVENTOR(S): Cutchens, Charles E.; Mathews, Marion J., III; Sowell, Mark S., III
PATENT ASSIGNEE(S): Monsanto Co. , USA
SOURCE: U.S., 6 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4491673	A	19850101	US 1982-369443	19820419

PRIORITY APPLN. INFO.: US 1982-369443 19820419

AB Residual Raney Ni catalyst in the reactor discharge stream during the hydrogenation under pressure of a nitrile to an amine is passified by treating the discharge stream with an inorg. base to form a separable 2-phase mixture, where the first phase contains the amine product and the second phase comprises an aqueous solution containing >40% inorg. base. The separable mixture is decanted, purged to remove the Raney Ni catalyst and Al compds., flashed to remove water, and partially recycled back into the inorg. base feed. Thus, crude **hexamethylenediamine** (I) [124-09-4], **prepared** from **adiponitrile** [111-69-3], containing 301 ppm Na, 9 ppm Al, and 11.6% water was treated with a 55% aqueous NaOH (I-aqueous NaOH ratio of 2:1) at 90° to give I containing 211 ppm Na, <1 ppm Al, and 5.6% water. Decreases in water content, Na, and Al compds. occurred at NaOH concns. 40-70%.

L8 ANSWER 37 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1984:139762 CAPLUS
DOCUMENT NUMBER: 100:139762
TITLE: Catalyst separation in production of amines
INVENTOR(S): Cutchens, Charles E.; Lanier, Lynn H.
PATENT ASSIGNEE(S): Monsanto Co. , USA
SOURCE: U.S., 5 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4429159	A	19840131	US 1983-476741	19830318
EP 119980	A1	19840926	EP 1984-870040	19840316
EP 119980	B1	19860604		
R: DE, FR, GB, IT				
JP 59181242	A2	19841015	JP 1984-50832	19840316
BR 8401227	A	19841023	BR 1984-1227	19840316

PRIORITY APPLN. INFO.: US 1983-476741 A 19830318

AB Amines, e.g., **hexamethylenediamine** (I) [124-09-4], are **prepared** by hydrogenation of the corresponding nitriles using H (**prepared** from CH4 and containing CO2) under pressure in the presence of Raney Ni catalyst in a **process** in which the amine is discharged into a stream which is separated in the presence of a constant carbonate concentration (preferably 0.2-0.25 weight %, measured as CO2) to give an upper crude amine stream and a lower catalyst slurry stream. The ratio of alkali to H2O in the catalyst wash water is <0.006. Thus, in the **preparation** of I from **adiponitrile** [111-69-3], the carbonate concentration was maintained at <0.6% with catalyst carryover .apprx.35 ppm.

L8 ANSWER 38 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1983:72892 CAPLUS
DOCUMENT NUMBER: 98:72892
TITLE: Catalyst passivation in production of amines

INVENTOR(S): Campbell, Charles R.; Cutchens, Charles E.
PATENT ASSIGNEE(S): Monsanto Co. , USA
SOURCE: U.S., 5 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4359585	A	19821116	US 1980-141836	19800421
PRIORITY APPLN. INFO.:			US 1980-141836	19800421

AB In the hydrogenation of nitriles to amines over Raney Ni, the catalyst is deactivated, suppressing decomposition of the amine, by adding inorg. bases to the reaction mixts. on discharge from reactors. Thus, when 70 g **hexamethylenediamine** [124-09-4] was heated with 0.5 g Raney Ni and 0.95 g NaOH under N at 50° for 2 h and refluxed 5 h, the loss of diamine was 0.5%, compared with 31% in the absence of NaOH.

L8 ANSWER 39 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1980:100139 CAPLUS
DOCUMENT NUMBER: 92:100139
TITLE: Cobalt catalyst
INVENTOR(S): Uehara, Ryoichi; Horii, Takeo; Imai, Takuya; Tomita, Yoshiaki; Yamano, Koichiro
PATENT ASSIGNEE(S): Nikko Scientific and Chemical Industries, Ltd., Japan
SOURCE: Jpn. Tokkyo Koho, 4 pp.
CODEN: JAXXAD
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 54037593	B4	19791115	JP 1975-1138	19741230
JP 51078795	A2	19760708	JP 1975-1138	19741230
PRIORITY APPLN. INFO.:			JP 1975-1138 A	19741230

AB Raney Co alloys are partially activated by using an aqueous solution of alkali metal borohydride to give a Co catalyst containing Co, Co-Al alloy, and Al hydroxide. The catalyst has good catalytic activity and durability. Thus, a Raney Co alloy (50% Co) 1 kg and a NaBH4 solution (100g/5L) 5L were heated at 80° (for 24 h) to give a slurry-like catalyst. The dried catalyst contained Co 33.2, Al31.1, and B 0.73% (the calculated composition of the catalyst: Co 19.72, Co-Al alloy 26.96, Al(OH)3 53.32%). The catalyst 2g was added to PhCN 40g (in MeOH 80 mL) and hydrogenation was carried out at 100 kg/cm2 and 124-130° to give PhCH2NH2 32.4g (yield 81.0%, purity 99.8%).

L8 ANSWER 40 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1976:592178 CAPLUS
DOCUMENT NUMBER: 85:192178
TITLE: Catalyst suspension foaming inhibition
INVENTOR(S): Morgan, Jewel C., Jr.
PATENT ASSIGNEE(S): Monsanto Co., USA
SOURCE: U.S., 5 pp.
CODEN: USXXAM

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3972940	A	19760803	US 1974-534386	19741219
GB 1473808	A	19770518	GB 1975-51797	19751218

PRIORITY APPLN. INFO.: US 1974-534386 A 19741219

AB Foaming of aqueous suspensions of Raney Ni during catalytic hydrogenation of **adiponitrile** to **hexamethylenediamine** (I) was inhibited by adding I to the catalyst suspension.

L8 ANSWER 41 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1963:447798 CAPLUS
DOCUMENT NUMBER: 59:47798
ORIGINAL REFERENCE NO.: 59:8576e-f
TITLE: **Synthesis** of **hexamethylenediamine** from 1,1,1,5-tetrachloropentane
AUTHOR(S): Saotome, Kazuo; Miyata, Seiji
CORPORATE SOURCE: Asahi Chem. Ind. Co., Tokyo
SOURCE: Kogyo Kagaku Zasshi (1963), 66(2), 205-8
CODEN: KGKZA7; ISSN: 0368-5462
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

AB **Synthesis** of **hexamethylenediamine** (I) from 1,1,1,5-tetrachloropentane (II), obtained by the telomerization of C2H4 and CCl4, was carried out via Et δ-cyanovalerate (III) or δ-cyanovaleric acid (IV) and **adiponitrile** (V). III was **prepared** in 91% yield from II (CA 58, 6920e). IV was obtained in 68% yield by adding an equimolar amount of aqueous 20% NaOH to 250 g. III in 250 ml. MeOH (0°, 3 hrs.) and keeping the mixture overnight. V was obtained in 91% yield by passing IV with 7 moles of NH3 through a reaction tube at 350° (boron phosphate was the catalyst; space velocity of reactants was 75 hr.-1). I was obtained in >90% yield by the catalytic hydrogenation of 30 g. V in 100 ml. MeOH and 7.5 g. NH3 under initial H pressure of 90 kg./cm.-2 at 60-70° for 1 hr., with 5 g. **Raney nickel** and Co as a catalyst.

L8 ANSWER 42 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1957:90332 CAPLUS
DOCUMENT NUMBER: 51:90332
ORIGINAL REFERENCE NO.: 51:16278e-g
TITLE: **Preparation** of **hexamethylenediamine** by hydrogenation of adipic dinitrile on a nickel catalyst under flow conditions
AUTHOR(S): Freidlin, L. Kn.; Balandin, A. A.; Rudneva, K. G.; Sladkova, T. A.
SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1957) 166-73
CODEN: IASKA6; ISSN: 0002-3353
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
OTHER SOURCE(S): CASREACT 51:90332

AB The effect of various factors on the hydrogenation of adipic dinitrile on a skeleton Ni catalyst is determined Under flow conditions, for a sufficiently long catalyst layer, the yield of **hexamethylenediamine** attains

80% of the theoretical yield. The high activity of the catalyst and a high ratio of the amount of catalyst to the amount of dinitrile **makes** it possible to carry out the hydrogenation at 80° and 50 atmospheric H. A decrease in temperature to 60° and in pressure to 20 atmospheric leads to a decrease in the yield of the diamine. An increase in temperature and pressure favors side reactions and increases the rate of deactivation of the catalyst. The addition of 0.24% caustic alkali to the dinitrile decreases the yield of diamine and increases the yield of **hexamethyleneimine** .

L8 ANSWER 43 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1955:87892 CAPLUS
DOCUMENT NUMBER: 49:87892
ORIGINAL REFERENCE NO.: 49:16523i,16524a
TITLE: **Hexamethylenediamine** and hexamethylenediammonium adipate
PATENT ASSIGNEE(S): E. I. du Pont de Nemours & Co.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 731819		19550615	GB	

AB **Hexamethylenediamine** (I), **prepared** by the hydrogenation of **adiponitrile** in the presence of a Co catalyst, is purified by fractional distillation to remove 1,2-diaminocyclohexane, **hexamethyleneimine**, and pentamethylenediamine. After purification, I can be treated in H2O with an equivalent amount of adipic acid to form an aqueous solution of hexamethylenediammonium adipate (II). These aqueous solns. have good color stability when stored in contact with air. Conversion of II to the polyamide gives a product of improved color and tensile strength and which is easier to dye with acid dyes.

L8 ANSWER 44 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1948:27415 CAPLUS
DOCUMENT NUMBER: 42:27415
ORIGINAL REFERENCE NO.: 42:5848h-i,5849a-c
TITLE: Reduction of nitriles of dibasic acids over **Raney nickel**
AUTHOR(S): Arbuzov, B. A.; Pozhil'tsova, E. A.
SOURCE: Bull. acad. sci. U.R.S.S., Classe sci. chim. (1946) 65-70
DOCUMENT TYPE: Journal
LANGUAGE: Russian
OTHER SOURCE(S): CASREACT 42:27415
AB The dinitriles of adipic, sebacic, and succinic acids are readily reduced over Raney Ni at 75-80° to the corresponding amino nitriles under 0.5-0.8 atmospheric H; **adiponitrile** is reduced to (CH2)6(NH2)2 at 100-10° and 80-100 atmospheric H. The catalyst was **made** from Al3Ni alloy by treatment with boiling 25% NaOH; after decanting, a fresh batch of alkali was used and the mixture heated 1 h. at 90°; this was repeated 2-3 times and the catalyst was washed free of alkali by H2O and absolute EtOH and was used immediately. **Adiponitrile** (10 g.), 150 g. BuOH, and 5 g. catalyst were treated with H (0.5-0.8 atmospheric) at 75-80° 10 h.; after filtration and removal of the BuOH in vacuo, the residue was diluted with H2O and 0.5 g. unreacted dinitrile was removed.

Treatment of the residue with BzCl resulted in isolation of 93% Bz derivative of the resulting ε- **aminocapronitrile**, m. 92-3° (from 70% alc.); hydrolysis by HCl gave ε-aminocaproic acid-HCl, which gave the free acid, m. 200-2°; the same yield was obtained if the catalyst was added in portions during the course of reduction Succinonitrile (8 g.), 150 cc. BuOH, and 4 g. catalyst similarly treated with H 19 h. at 75-80° gave the Bz derivative of γ-aminobutyronitrile (no data given, but a general statement indicated a yield of 90%), as an oil, which on hydrolysis by HCl gave γ-aminobutyric acid, m. 181-2°; HCl salt, m. 134-5°; chloroplatinate, m. 218-20°. Sebaconitrile (10 g.), 150 g. BuOH, and 5 g. catalyst were hydrogenated as above for 26 h.; filtration, removal of the BuOH, and treatment of the residue with BzCl gave (yield not given) the Bz derivative of ε-aminocapric acid, m. 103-5°, which on hydrolysis by HCl gave the free acid, m. 185-7°; chloroplatinate, m. 298-302° (decomposition). **Adiponitrile** (50 g.), 450 g. BuOH, and 17 g. catalyst heated 2 h. to 110° at 90 atmospheric initial H pressure (45 atmospheric final) gave 1.3 g. unreacted dinitrile, and 46 g. (85.7%) **hexamethylenediamine**, b. 200-4°; 3.5 g. of tar was formed. Increase of the temperature to 150° (14 h.) dropped the yield to 26.8%; halving of the catalyst amount dropped the yield to 64%. The high-pressure runs were **made** in a rotating Bergius autoclave.

=> log y

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	159.80	160.01

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-33.00	-33.00

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